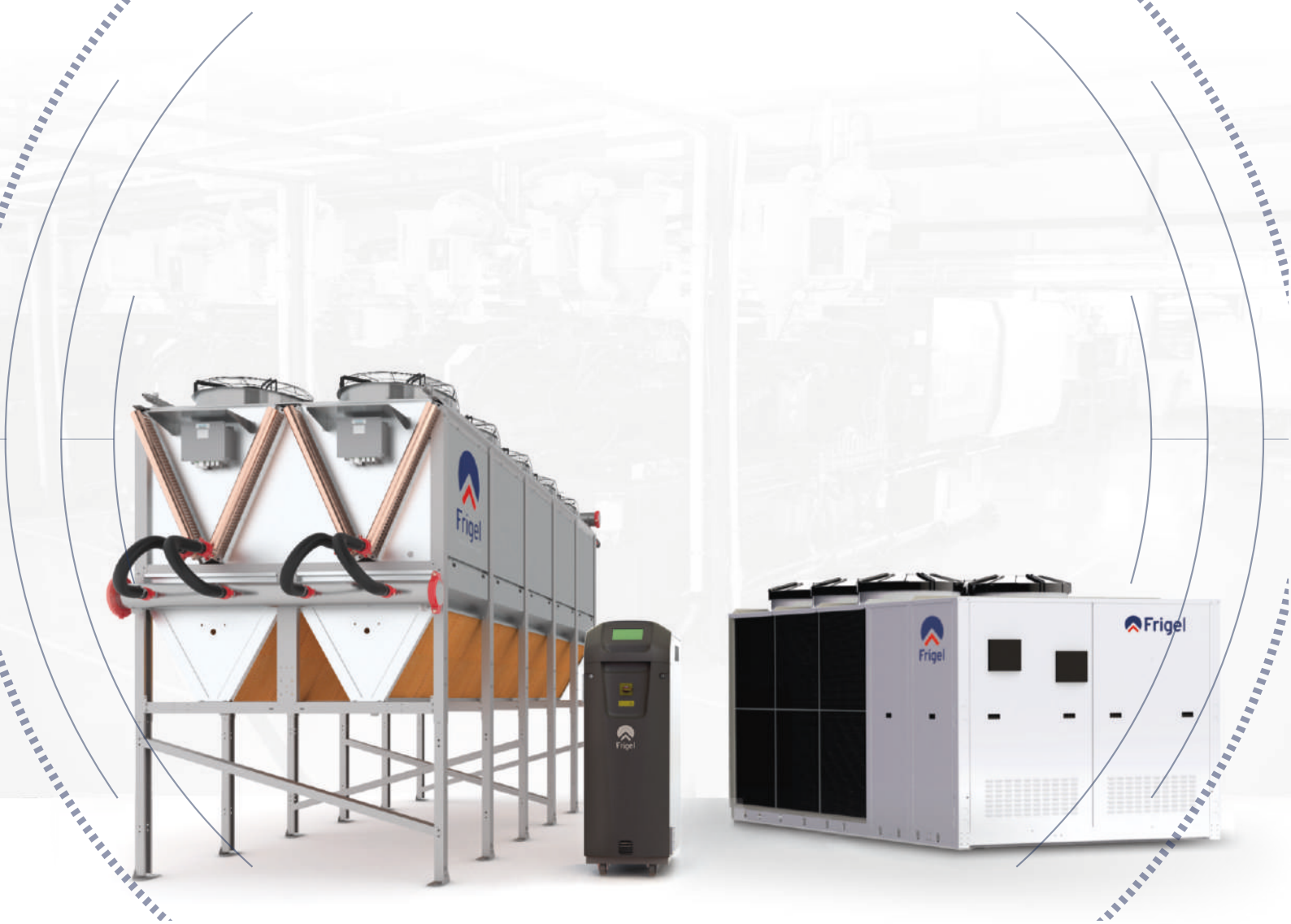
Frigel
Intelligent Process Cooling

THE INNOVATION

ECODRY SYSTEM 4.0

PROCESS-SYNCHRONIZED COOLING



MEDICAL

PERFORMANCE

INCREASED PRODUCTIVITY

up to 50%

Each mold runs with shortest cooling time, consistently producing high quality parts at the highest throughput.

REDUCED OPERATING COSTS

-40%

Energy savings (**up to 30%**), water savings (**up to 95%**) and maintenance costs Savings (**up to 90%**).

TOTAL MODULARITY

100%

Plug & Play Concept. Easily expandable at any time. Total reliability.

SUSTAINABILITY

REDUCED "CARBON FOOTPRINT"

-40%

Unbeatable overall efficiency: intelligent use of energy and free-cooling opportunities.

MINIMIZED WATER FOOTPRINT

-95%

Adiabatic, closed circuit heat rejection technology with no process water evaporation or bleed-off.

REDUCED "RISKS OF EMISSIONS"

-95%

Uses small quantities of innocuous low GWP refrigerant. No disposal of any water treatment chemicals.

THE NEW COOLING SOLUTION FOR MEDICAL ECODRY SYSTEM 4.0

This new approach covers all the varieties of applications in medical components molding with unbeatable performance improvements: real cooling cycle time reduction and running cost savings together with outstanding reduction of environmental impact.

① ECODRY

Adiabatic Cooling System

Ecodry is a central closed-circuit Adiabatic Cooling System, designed as a replacement of old cooling tower technology. Ecodry is installed outdoors in order to reject to ambient the heat extracted from processes. This system provides direct cooling to all water consuming devices, such as hydraulic heat exchangers, extruder barrels, resin dryers, as well as water cooled air compressors and chillers, etc.

Main Features

- Maximum cooling water temperature: 30/35°C (85/95°F)
- Cooling capacity: 50 - 10000 kW (15 - 3000 tons)
- Process flow range: 10 - 2000 m³/h (50 - 9000 gpm)
- High Efficiency Adiabatic Chamber for air pre-cooling (internationally patented)
- Antifreezing self-draining configuration
- Large surface heat exchangers, with copper coils and aluminum fins with hydrophilic protection
- Axial fans with built in brushless EC inverter driven motors individually wired
- Modular design with preassembled stainless steel manifolds for interconnection
- Stainless steel structural frame and aluminum access panels
- Web-monitoring interface

Highlights

- Guaranteed operation, with minimum water consumption and maintenance even in extreme weather conditions up to 50°C (120°F) ambient temperature
- Safe winter operation without glycol down to -40°C (-40°F) ambient temperature
- High fan energy savings during partial load operation
- Compact design with minimum footprint required between units
- High reliability with electrical redundancy and 100% rust free materials

② MICROGEL for Injection Molding

Temperature Control Unit with Chiller & Booster Pumps

Microgel is a super-compact mold cooling unit specifically designed for "cycle cooling time reduction". Combines a water cooled chiller with one or two high flow booster pump temperature controllers with heating elements and a free-cooling valve. Allows for researching and recording the best setting of flow rate and temperature for each zone, optimizing product quality with the minimum cooling time.

Main features

- More than 50 models, MONO or DUO (one or two temperature zones)
- Wide temperature range: -5 to 90°C ± 0.2°C (23 to 194°F ± 0.5°F)
- Chiller capacity: from 16 to 212 kW (4.3 to 60 tons)
- Heating Capacity: from 6 to 48 kW
- Booster pump per zone: from 1 to 140 m³/h (5 to 220 gpm) - inverter (VFD)
- Temperature, flow and pressure digital readings (to and from mold)

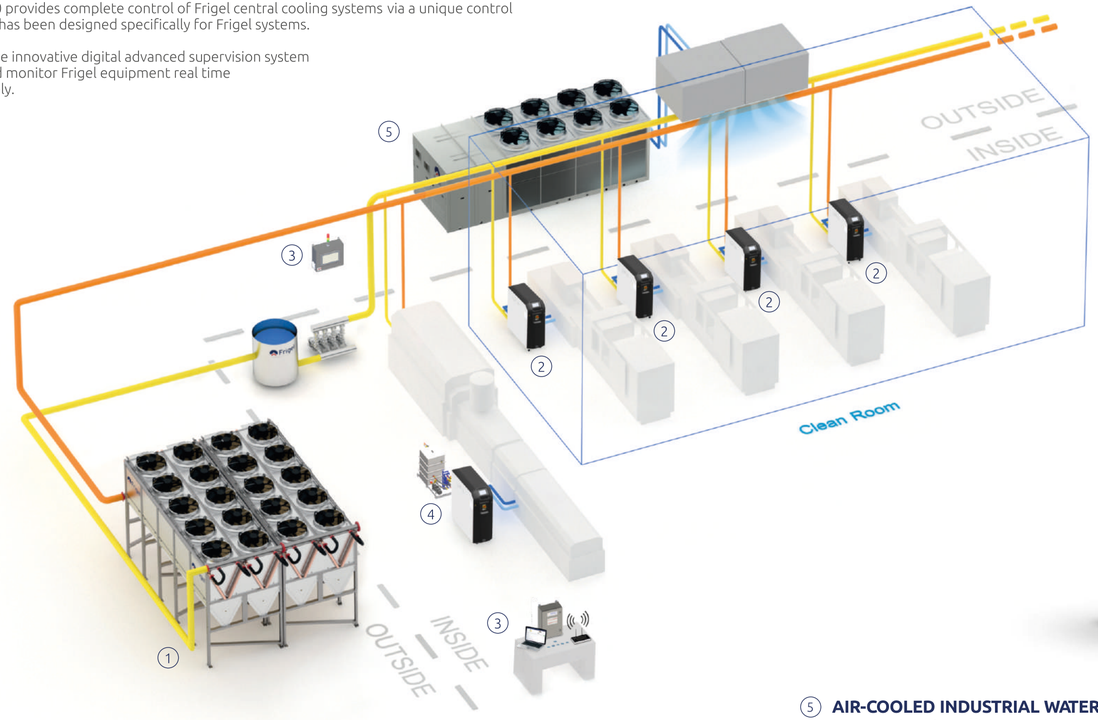
Highlights

- Cycle time reduction up to 25%
- Intelligent use of energy consumption
- High energy savings with automatic free-cooling
- Automatic mold draining
- Web-monitoring interface

③ NETGEL for industry 4.0

The 3PR 4.0 provides complete control of Frigel central cooling systems via a unique control panel, that has been designed specifically for Frigel systems.

MiND® is the innovative digital advanced supervision system to track and monitor Frigel equipment real time and remotely.



④ MICROGEL for Extrusion

Temperature Control for Extrusion Baths

Microgel for extrusion is a super-compact cooling unit specifically designed for "cooling time reduction" of plastic tubing/profile extrusion lines. Microgel allows total flexibility, thanks to individual temperature control of each cooling bath. Digitally connected with the extruder, allows for researching and recording the best temperature setting that optimizes product quality with minimum cooling time.

Main features

- Wide temperature range: 5 to 80°C ± 0.2°C (41 to 176°F ± 0.5°F)
- Chiller capacity: from 16 to 212 kW (4.3 to 60 tons)
- Heating capacity: from 6 to 24 kW
- Automatic free-cooling mode

Highlights

- Cooling time reduction and increased productivity
- Perfect repeatability
- Intelligent use of energy consumption
- High energy savings with automatic free-cooling
- Web-monitoring interface

⑤ AIR-COOLED INDUSTRIAL WATER CHILLERS

Heavygel is a high efficiency chiller engineered for heavy-duty industrial applications. The units are equipped with world class components, including high efficiency scroll or multi-scroll compressors. The integrated programmable control system assures reliable operation and temperature control under the most demanding conditions and extreme environments.

Main features

- 5 Scroll compressor models with capacities from 81 to 157 kW (23 to 45 tons)
- 10 Multi-scroll compressor models with capacities of 161 to 581 kW (46 to 165 tons)
- LWT Operating range from 0 to 25°C (32 to 77°F) in ambient temperatures up to 50°C (122°F)
- 3 to 9 kW (4 to 12 hp) process pumps rated for up to 24 to 132 m³/h (105 to 580 gpm)
- High efficiency brushless EC fans available
- High-pressure fans available for use with exhaust ductwork
- Easily expandable for use with Frigel pump sets, reservoirs and filters

Highlights

- High energy efficiency
- High reliability and easy maintenance
- Environmental sustainability
- Web-monitoring interface

Frigel

Intelligent Process Cooling

www.frigel.com

SYS-PLAST.MEDI.EN.LR.A4.01.00